PEREL'MAN, A.I., doktor geol.-mineral.nauk

Historical geochemistry; ancient and present-day landforms of Central Asia. Priroda 52 no.3:15-23 '63. (MIRA 16:4)
(Soviet Central Asia--Geochmistry)
(Soviet Central Asia--Landforms)

S/204/63/003/001/007/013
E075/E436

AUTHORS: Topchiyev, A.V. (deceased), Mushina, Ye.A., Perel'man, A.I.

TITLE: Comparison of the reactive capacity of allylbenzene and allylcyclohexane during polymerization on chromia catalyst

PERIODICAL: Neftekhimiya, v.3, no.1, 1963, 74-81

TEXT: The polymerization was carried out in n-heptane or mineral oil and measured dilatometrically. The catalyst was 6% CrO_3 on silica-alumina and constituted 9% weight of the 35% monomer/solvent mixture. The temperature varied between 60 and 80°C. The rate of the polymerization for allylbenzene was slower (about 50% in the first 100 minutes) than that of allylcyclohexane. The rates decrease with time due to isomerization of the monomers. The activation energies for allylbenzene and allylcyclohexane are 14.0 and 11.0 kcal/mol respectively. Since these energies are similar, the difference in the polymerization rates is considered to be connected with the pre-exponential factor which expresses the different positioning of the molecules of allylbenzene and allylcyclohexane on the catalyst surface. As the adsorption of allyl-

Card 1/2

Comparison of the reactive ...

benzene from n-heptane exceeds that of allylcyclohexane 3 times it is postulated that the strong adsorption of the benzene ring during the squeezing out of allyl group from the catalyst surface prevents the interaction of π-electrons in the double bond of the monomer with the electronic orbits of the catalyst. The investigation of the reactive capacity of monomers of different structure could be facilitated by the study of their adsorptional properties on the catalysts. There are 8 figures and 3 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR
(Institute of Petrochemical Synthesis AS USSR)

SUBMITTED: June 9, 1962

Card 2/2

PEREL'MAN, F.M., DOLININA, R.M.

Solubility and viscosity isotherms (50°) in the system LiI - LiBr - H20. Zhur.neorg.khim. 7 no.7:1681-1684 Jl '62. (MIRA 16:3)

1. Institut obshchey i neorganicheskoy khimii AN SSSR imeni N.S.Kurnakova i Azerbaydzhanskiy gosudarstvennyy universitet.
(Lithium iodide) (Lithium bromide) (Systems (Chemistry))

TOPCHIYEV, A.V. [deceased]; MUSHINA, Ye.A.; PEREL'MAN, A.I.

Comparison of the reactivity of allylbenzene and allylcyclohexane during polymerization on a chromia catalyst. Neftekhimiia 3 no.1:74-81 Ja-F '63. (MIRA 16:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Benzene) (Cyclohexane) (Polymerization)

PERELMAN, A.I., az asvanytani-geologiai tudomanyok doktora (Moskva)

Geochemistry of ancient regions. Term tud kozl 5 no.7:309-312 Jl '61.

ZELENOVA, O.I.; PEREL'MAN, A.I., doktor geol.-min.nauk, otv.red.; KALANTAROV, A.P., red.izd-va; SIMKINA, G.S., tekhn.red.

[Lithology, facies, and geochemical characteristics of Alay stage sediments in the Tajik Depression]. Litologiia, fatsii i geokhimicheskie osobennosti otlozhenii Alaiskogo iarusa Tadzhikskoi depressii. Moskva Izd- vo Akad. nauk SSSR. 1961. 127 p. 22 plates. (Akademiia nauk SSSR. Institut geologii rudnykh mestorozhdenii, petrografii, mineralogii i geokhimii. Trudy, no.53). (MIRA 15:10)

(Tajik Depression—Geology)

PEREL'MAN, A.I., doktor geol.-mineral.nauk (Moskva)

Inner contradictions of science; new theories and the production requirements of society. Priroda 51 no.8:43-47 Ag '62.
(MIRA 15:9)

(Science)

PEREL'MAN, A.I.; BATULIN, S.G.

Migration series of elements in the weathering surface. Kora vyvetr. no.4:219-260 '62. (MIRA 15:9)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR.
(Weathering) (Geochemistry)

PEREL'MAN, A.I.; BORISENKO, Ye.N.

Outlines of the copper geochemistry in the supergene zone. Part 1: Characteristics of copper atom determining the migration in the supergene zone. Trudy IGEM no.70:30-99 '62. (MIRA 15:9)
(Copper) (Geochemistry)

YEVSEYEVA, Lyudmila Spiridonovna; PEREL'MAN, Aleksandr Il'ich; PANASENKOVA, Ye.I., red.; VLASOVA, N.A., tekhn. red.

[Geochemistry of uranium in a supergene zone] Geokhimiia urana v zone gipergeneza. Moskva, Gosatomizdat, 1962. 238 p. (MIRA 15:12)

(Uranium)

PEREL'MAN, A.I.; ANTONOVA, A.I.

Determination of hexavalent chromium in catalysts for polymerization of olefins. Zhur.anal.khim. 16 no.6:729-730 N-D '61. (MIRA 14:12)

1. Institute of Petroleum-Chemical Synthesis, Academy of Sciences U.S.S.R., Moscow.
(Chromium--Analysis)
(Olefins)

SERGEYEV, G.B.; SHARAYEV, O.K.; TOPCHIYEVA, K.V.; PEREL'MAN, A.I.; TOPCHIYEV, A.V.

Electron paramagnetic resonance studies of chromium oxide catalysts for ethylene polymerization. Neftekhimia 2 no.1:18-20 Ja-F '62. (MIRA 15:5)

1. Institut neftekhimicheskogo sinteza AN SSSR i Khimicheskiy fakul'tet Moskovskogo universiteta.
(Catalysts—Spectra) (Ethylene) (Polymerization)

SHARAYEV, O.K.; TOPCHIYEVA, K.V.; PEREL'MAN, A.I.; TOPCHIYEV, A.V.

Nature of the induction period in the polymerization of ethylene on a chromium oxide catalyst. Neftekhimiia 2 no.2:187-188 Mr-Ap '62. (MIRA 15:6)

1. Institut neftekhimicheskogo sinteza AN SSSR i Moskovskiy universitet, kafedra fizicheskoy khimii.
(Ethylene polymers) (Catalysts, Chromium)

S/204/62/002/001/001/007
I032/I232

AUTHORS: Sergeyev, G. B., Sharayev, O. K., Topchiyeva, K. V., Perel'man, A. I., and Topchiyev, A. V.

TITLE: Investigation of chromic oxide catalysts for polymerisation of ethylene by the method of electron paramagnetic resonance

PERIODICAL: Neftekhimiya, v. 2, no. 1, 1962, 18–20

TEXT: The aim of this study was the verification of the hypothesis, previously expressed by the authors, that the activity of the catalyst is produced under the action of the reacting substance, ethylene. Experiments on polymerisation of ethylene over chromic oxide catalysts were carried out and the EPR spectra of the catalyst withdrawn from the reaction zone at different stages of the process were taken. The catalyst was prepared by impregnating aluminum silicate with an aqueous solution of chromic anhydride and subsequent activation. Two varieties of the catalyst, differing by the method of activation, were used. One was activated in a current of air at 500°, the other one— under vacuum at 350°. The catalyst activated under vacuum displayed an induction period. The EPR spectra of the two varieties of catalyst, taken at identical stages of the polymerisation process, were found to be practically identical with respect both to the line width and the value of

the g factor (which was 1 97). The identity of the active centres in the two varieties of the catalyst was thus established. The observed narrow EPR line is attributed to a compound of quinquevalent chromium and the Cr^{5+} ions are considered to constitute the active centres. The induction period in the catalyst activated under vacuum is interpreted as the time necessary for the reduction of Cr^{6+} by ethylene. There are 2 figures.

ASSOCIATION. Institut neftekhimicheskogo sinteza AN SSSR, Khimicheskii fakultet Moskovskogo Universiteta (Institute of Petrochemical Synthesis, AS USSR, Chemistry Faculty, University of Moscow)

SUBMITTED November 24, 1961

SAUKOV, A.A.; PEREL'MAN, A.I., doktor geol.-mineral.nauk

Geochemistry of our time; current problems of its application in the national economy. Priroda 50 no.10:59-66 O '61. (MIRA 14:9)

1. Chlen-korrespondent AN SSSR (for Saukov).
(Geochemistry)

PEREL'MAN, Aleksandr Il'ich, doktor geologo-mineralog. nauk; SMIRNOVA, N.P., red.; ATROSHCHENKO, L.Ye., tekhn. red.

[Geochemistry and landforms] Geokhimiia i landshafty. Moskva, Izd-vo "Znanie," 1961. 47 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.12, Geologiia i geografiia, no.19) (MIRA 15:2)
(Geochemistry) (Landforms)

S/204/61/001/006/001/004
E075/E436

AUTHORS: Topchiyeva, K.V., Sharayev, O.K., Perel'man A.I.
Topchiyev, A.V.

TITLE: Some data on the polymerization of ethylene on chromia catalyst

PERIODICAL: Neftekhimiya, v.1, no.6, 1961, 780-785

TEXT: The object of the work was to continue the investigation of ethylene polymerization process on chromia catalyst in order to elucidate the nature of the catalytic activity. The chromia catalyst was deposited on alumino-silicate obtained from silica gel covered with 3% wt of Al_2O_3. One portion of the catalyst was activated in N (dry air stream) for 4 hours at 500°C. The other portion was activated under vacuum at 350°C for 4 hours. Both catalysts contained 3% wt Cr. The quantities of Cr^{6+} were 1.25 and 1.96% wt for the catalysts activated under vacuum and in N respectively. Experiments were carried out at several temperatures between 40 and 135°C. Ethylene was fed into reactor at the rate of 40 ml/min and each experiment lasted 40 min. Activity of the catalysts was obtained from the increases in their

Some data on the polymerization ...

weight due to deposition of polymer. The amount of heat evolved during the process was measured to observe the progress of the polymerization. It was assumed that the rise of the catalyst temperature T is proportional to the heat evolved and, consequently, to the reaction rate. The small initial heating obtained corresponded to the heat of adsorption. It was followed by an induction period and the main heating effect due to the polymerization. The heating curve rose exponentially, passed through a maximum and then fell as the reaction rate decreased. The length of the induction period increased (from about 2 to 20 min) with the decreasing temperature of reaction. The induction period disappeared when the catalyst was activated with ethylene instead of nitrogen at 500°C. The authors concluded that the formation of active surface on chromia catalyst was due to its interaction with ethylene. The length of the induction periods was governed by the time of activation of the surface. The authors postulated that ethylene reduced chromium in the catalyst from Cr^{6+} to Cr^{5+}. The catalyst activated in air operated without the induction period because such a catalyst could be

Card 2/3

GLAZOVSKAYA, Mariya Al'fredovna, prof.; MAKUNINA, Aleksandra Aleksandrovna, kand. geogr. nauk; PAVLENKO, Irina Alekseyevna, kand. geogr. nauk; BOZHKO, Margarita Georgiyevna, starshiy laborant; GAVRILOVA, Irina Pavlovna, nauchnyy sotr., laborant; GRUNVAL'D, V.P., retsenzent; ZASUKHIN, G.N., retsenzent; PEREL'MAN, A.I., red.; FADEYEVA, I.I., red.; YERMAKOV, M.S., tekhn. red.

[Geochemistry of land forms and prospecting for minerals in the Southern Urals] Geokhimiia landshaftov i poiski poleznykh iskopaemykh na IUzhnom Urale. Pod red.A.I.Perel'mana. Moskva, Izd-vo Mosk.univ., 1961. 180 p. (MIRA 15:2)

1. Nachal'nik Yuzhno-Ural'skoy landshaftno-geokhimicheskoy ekspeditsii geograficheskogo fakul'teta Moskovskogo gosudarstvennogo universiteta (for Glazovskaya). 2. Yuzhno-Ural'skoye geologicheskoye upravleniye Ministerstva geologii i okhrany nedr SSSR (for Grunval'd, Zasukhin). (Ural Mountains--Geochemichal prospecting)

PEREL'MAN, Aleksandr Il'ich; KAPYSHEVA, V.S., red.; GOROKHOVA, S.S., tekhn. red.

[Geochemistry of epigenetic processes; zone of supergene processes] Geokhimiia epigeneticheskikh protsessov; zona gipergeneza. Moskva, Gos. izd-vo "Vysshaia shkola," 1961. 149 p. (MIRA 15:3)

(Geochemistry)

PEREL'MAN, A.I., doktor geol.-mineral.nauk (Moskva)

In search for mineral resources. Priroda 50 no.9:98-100 S '61. (MIRA 14:8)
(Geochemical prospecting)

PEREL'MAN, Aleksandr Il'ich; VASIL'YEVA, O.S., red.; KONOVALYUK, I.K., mladshiy red.; GOLITSYN, A.V., red. kart; KOSHELEVA, S.M., tekhn. red.

[Geochemistry of landforms] Geokhimiia landshafta. Moskva, Gos. izd-vo geogr. lit-ry, 1961. 496 p. (MIRA 14:12)
(Geochemistry) (Landforms)

PEREL'MAN, A.I., doktor geol.-mineral.nauk

Geochemistry of ancient land forms. Priroda 50 no.1:41-50 Ja '61.
(MIRA 14:1)

(Geochemistry)

DAKHNOV, G.V.; PEREL'MAN, A.L.; RABINOVICH, G.Ya.; SHCHERBAKOVA, T.V.

First results of acoustical logging using the LAK-1 laboratory. Neftegaz.geol. i geofiz. no.8:23-27 '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki i Vsesoyuznyy nauchno-issledovatel'skiy institut razvedochnoy geofiziki.

KUZ'MINA, A.I.; KUSHNAREVA, E.E.; PEREL'MAN, A.L.

Description of the outbreak of infleunza in Stalingrad in 1959. Vop. virus. 5 no. 6:753 N-D '60. (MIRA 14:4)
(STALINGRAD—INFLUENZA)

MUKHAREV, L.A.; PEREL'MAN, A.M.; ROGOVA, N.A.

Determining specific inductive capacitance of materials at high temperatures in the 3 cm. radio wave band. Prib.i tekh.eksp. 6 no.5:138-141 '61. (MIRA 14:10)
(Dielectric constant--Measurement)

Perelman, A.L.

Distr: 4E4j/4E2c(j)

Diphenylcarbazide. A. L. Perel'man and E. K. Kogan. U.S.S.R. 107,817, May 25, 1956. The title compd. is obtained by condensation of phenylhydrazine with urea. For best results the condensation is carried out in boiling xylene. M. Hosch

3 May

NAZAROV, I.A.; PEREL'MAN, A.L.; SMOLOV, V.B.; STEPASHKIN, G.I.; STERNIN, V.I.

Electronic calculator of the propagation velocity interval of elastic vibrations for an acoustical logging device. Geofiz. prib. no.9:46-64 '61. (MIRA 15:11)
(Logging (Geology)--Equipment and supplies)
(Electronic calculating machines)

ACC NR: AR6016963 SOURCE CODE: UR/0169/65/000/012/D041/D041

AUTHOR: Dakhnov, G.V.; Perel'man, A.L.; Rabinovich, G.Ya.; Shcherbakova, T.V.

TITLE: First results of acoustic carottage with the type LAK-1 laboratory

SOURCE: Ref. zh. Geofizika, Abs. 12D283

REF SOURCE: Neftega . geol. i geofiz. Nauchno-tekhn. sb., no. 8, 1965, 23-27

TOPIC TAGS: porosity, elasticity, mineral, seismology, acoustic detection, acoustic equipment/LAK-1 acoustic equipment

ABSTRACT: A brief description of an acoustic carottage laboratory, LAK-1, is given; diagrams registered by the laboratory and problems being solved are discussed and listed. The LAK diagrams can be used for the segregation of the cross sections of bores and the sorting of rocks according to their elastic properties (on the differences of sound passage time and persistence of the wave picture), for the delineation of broken zones, qualitative evaluation of rock porosity; quality control of concrete columns, and for ancillary data for seismic recon interpretation. The use of LAK-1 equipment can be valuable in cases when common carottage methods do not assure solution of problems related to the cross section (e.g. in bores with high mineralization of the boring solution). The precision of velocity determination from diagrams is evaluated. Use of LAK-1 for research in methodology and for the clarification of prospective utilization of acoustic carottage is recommended. A desire for an increase of stable allowable operating temperature and a decrease in the diameter of the apparatus used in bores is expressed. [Translation of abstract].

Card 1/1 SUB CODE: 08 UDC 550.839:550.834

ACC NR: AT6032733 SOURCE CODE: UR/0000/66/000/000/0077/0084

AUTHOR: Perel'man, A. L.; Zorin, G. K.; Rabinovich, G. Ya.

ORG: none

TITLE: Results of tests of mock-ups and samples of acoustic logging equipment and some prospects of its use

SOURCE: AN SSSR. Institut fiziki Zemli. Geoakustika; ispol'zovaniye zvuka i ul'tra-zvuka v seysmologii, seysmorazvedke i gornom dele (Geoacoustics; the use of sound and ultrasound in seismology, seismic prospecting, and mining). Moscow, Izd-vo Nauka, 1966, 77-84

TOPIC TAGS: acoustic logging, well logging, ultrasonic logging, digital computer, seismologic instrument, engineering machinery

ABSTRACT: The development of pulse acoustic logging equipment in the Leningrad Branch of VNIIGeofizika and VIRG (All-Union Scientific Research Institute of Prospecting Geophysics) since about 1956 is described. The first field test of acoustic logging equipment was made at Ramenskiy well 1 in 1957. A three-element well device containing magnetostrictive emitter and two receivers was used in the experiment. Digital analog computers to determine the formation velocity and total time from the first arrivals were developed by VIRG and LETI (Leningrad Electrical Engineering Institute) in the period 1958—1960. In 1962, industrial tests were made of an experimental model of the LAK-1 acoustic logging device which had been developed by VNIIKAneftegaz and

Card 1/2

ACC NR: AT6032733

VIRG. The LAK-1, which has two emitters and one receiver, is now being produced in the Kiev Geophysical Instrument Plant. Orig. art. has: 3 figures.

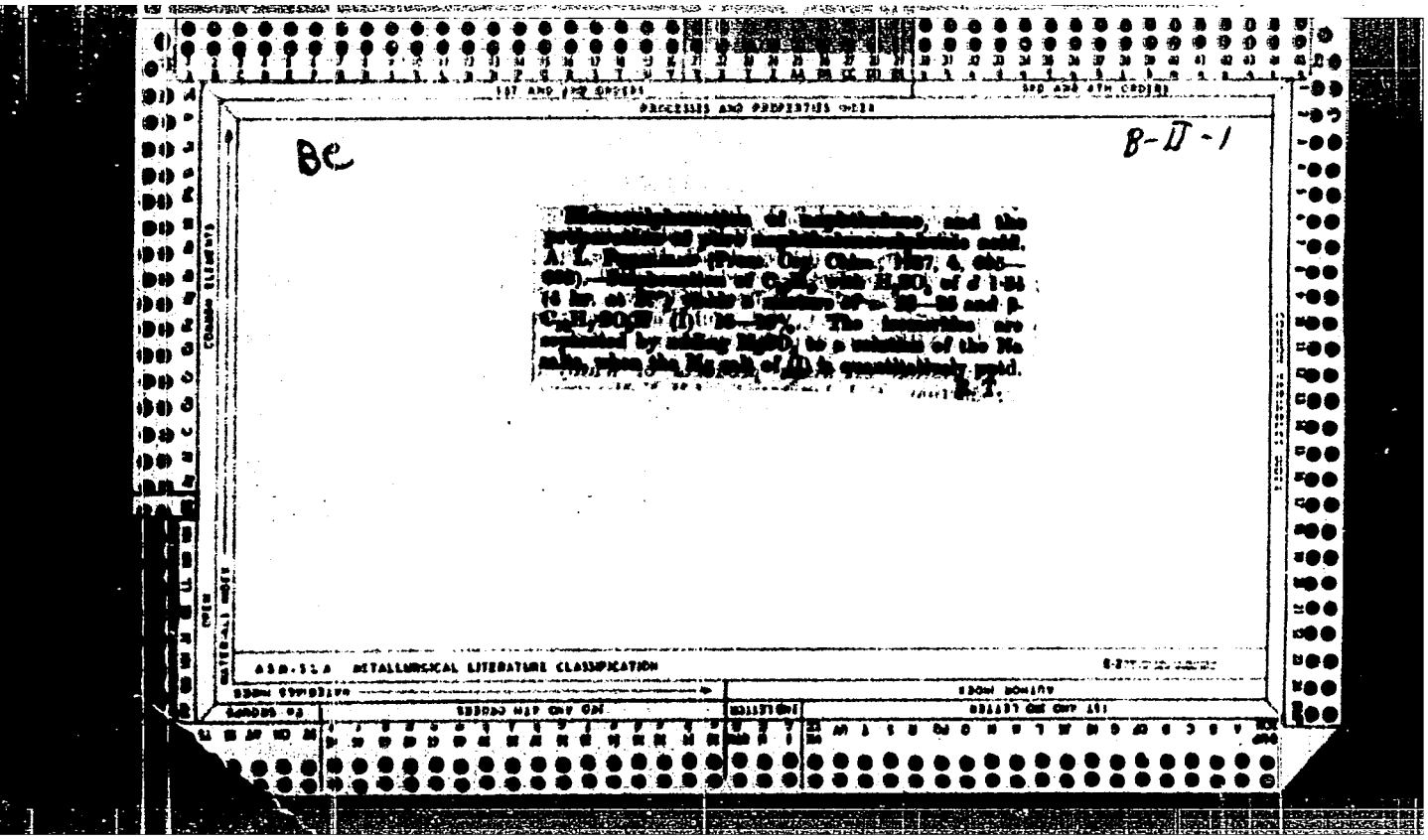
SUB CODE: 08/3/ SUBM DATE: 28Mar66/ ORIG REF: 003/ OTH REF: 002

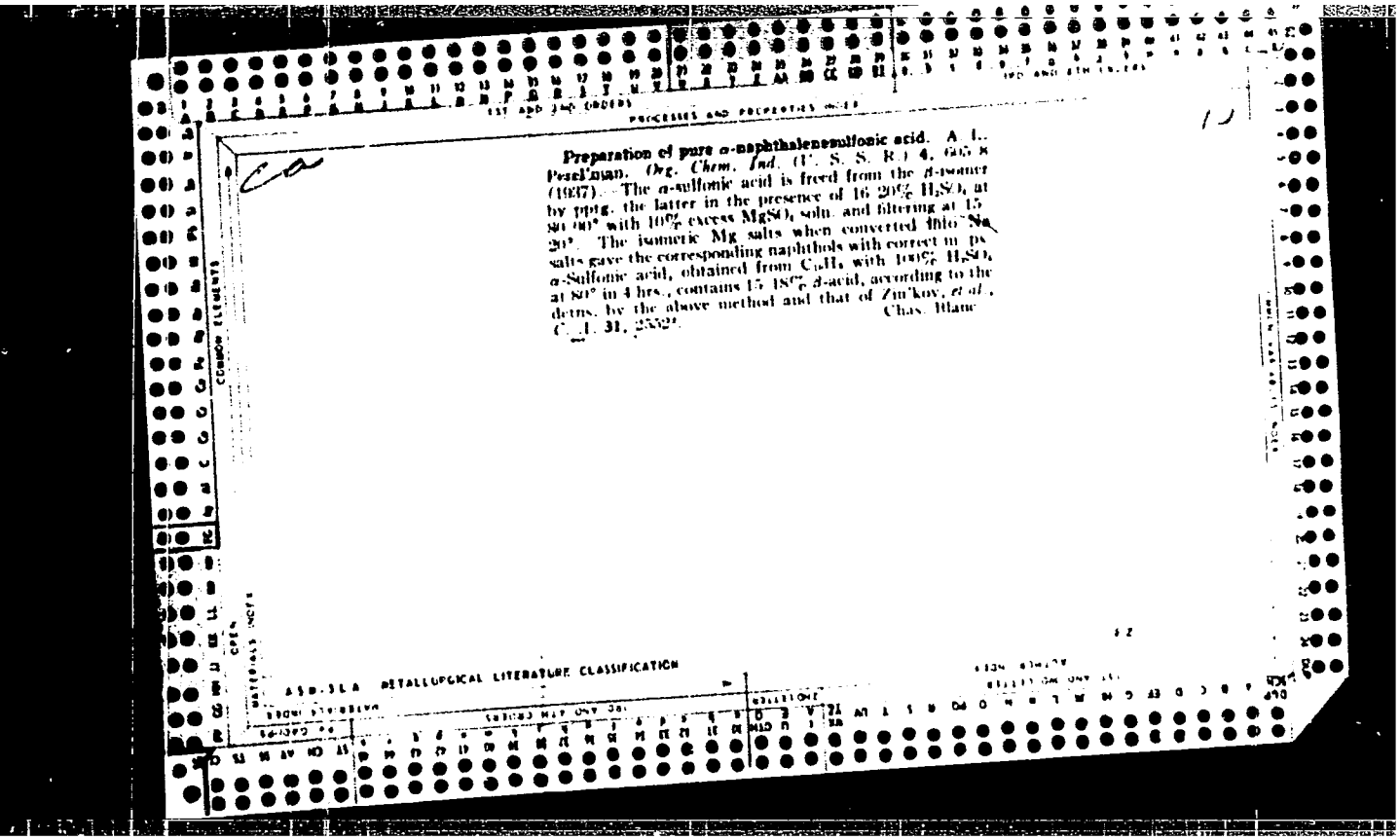
Card 2/2

PEREL'MAN, Aleksandr Il'ich; FEODOT'YEV, K.M., kand.geol.-miner.nauk,otv.red.; MARKOV, V.Ya., red.izd-va; ASTAF'YEVA, G.A., tekhn.red.

[Migration processes of salts on the plains of eastern Turkmenia and western Uzbekistan in the Neogene; ancient soils of deserts in Central Asia] Protsessy migratsii solei na ravninakh Vostochnoi Turkmenii i Zapadnogo Uzbekistana v neogene; drevnie pochvy pustyn' Srednei Azii. Moskva, Izd-vo Akad. nauk SSSR. 1959. 108 p. (Akademiia nauk SSSR. Institut geologii rudnykh mestrozhdenii, petrografii, mineralogii i geokhimii. Trudy, no.25) (MIRA 15:10)

(Soviet Central Asia--Salt deposits)
(Soviet Central Asia--Soil chemistry)





Preparation of pure α-naphthalenesulfonic acid. A. L. Pesel'man. *Org. Chem. Ind.* (U. S. S. R.) 4, 665-8 (1937).—The α-sulfonic acid is freed from the β-isomer by ppte. the latter in the presence of 16.20% H_2SO_4 at 80-90° with 10% excess $MgSO_4$, soln. and filtering at 15-20°. The isomeric Mg salts when converted into Na salts gave the corresponding naphthols with correct m. ps. α-Sulfonic acid, obtained from $C_{10}H_8$ with 100% H_2SO_4 at 80° in 4 hrs., contains 15.18% β-acid, according to the detns. by the above method and that of Zin'kov, *et al.*, Chas. Blanc *C. A.* 31, 2552[1].

L 35213-66 EWT(d)/EWP(1) IJP(c) BC
ACC NR: AP6008531 SOURCE CODE: UR/0280/66/000/001/0154/0160

AUTHOR: Perel'man, A. M. (Moscow)

ORG: none

TITLE: Determination of the statistical characteristics of a nonlinear servosystem

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 1, 1966, 154-160

TOPIC TAGS: ~~nonlinear~~ automatic control system, servosystem, narrow band transmission

ABSTRACT: The author notes that at the present time the most effective approximate method of deriving the probability characteristics of systems which contain essentially nonlinear elements is the statistical linearization method proposed by I. Ye. Kazakov (Kazakov, I. Ye., Dostupov, B. G. Statisticheskaya dinamika nelineynykh avtomaticheskikh sistem. Fizmatgiz, 1962). Fundamentally, this method consists in a description of the nonlinear inertialess elements in the system by the statistical gain factors K_0 and K_1, i.e., by replacing them with linear inertialess elements with gain factors K_0 and K_1 for the regular and random components. The result is that the probability characteristics are determined through the use of familiar methods associated with linear systems. In this paper an approximate method is outlined for the determination of the mismatching probability

Card 1/2

PERELMAN, A. N.

"Predominating Chemical Elements in the Landscape," Nature, 2nd Printing House of the Publ. Co. of the AS USSR Moscow, No. 4, 1952.

32455
S/044/61/000/010/019/051
C111/C222

16.3500

AUTHOR: Perel'man, A.Ya.

TITLE: Limit value problems for the polyharmonic equation with constant and variable coefficients in the boundary conditions

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1961, 46-47, abstract 10 B 202. ("Tr. Vses. zaochn. lesotekhn. in-ta", 1958, no. 3, 89-105)

TEXT: It is shown how the solution of a number of limit value problems can be obtained for the general polyharmonic equation with constant coefficients in the boundary conditions and for the equations $\Delta u = 0$, $\Delta^2 u = 0$ with variable coefficients in the boundary condition. In § 1 the author reduces limit value problems for $\Delta^n u = 0$ in the case of an arbitrary simply connected region to the solution of a finite number of Dirichlet problems and to the solution of systems of integral equations. In § 2 these problems in the case of the unit circle are reduced to the integration of ordinary differential equations or of a system of ordinary differential equations. E.g. for an even n the problem

Card 1/2

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Kinetics of cloud crystallization. Izv.AN SSSR.Ser.geofiz. no.6:839-853 Je '60. (MIRA 13:6)

1. Vsesoyuznyy zaochnyy lesotekhnicheskiy institut.
(Cloud physics)

KAGAN, V.K.; FERREL'MAN, A.Ya.; RYABOVA, Ye.P.

Brightness of a cloudless sky in a two-parameter atmospheric model. Trudy GGO no.100:20-24 '60. (MIRA 13:6)
(Solar radiation)

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Kinetics of distillation in a supercooled system. Dokl.AN SSSR 132 no.5:1148-1151 Je '60. (MIRA 13:6)

1. Vsesoyuznyy zaochnyy lesotekhnicheskiy institut. Predstavleno akademikom A.N. Frumkinym.
(Distillation) (Supercooling)

PEREL'MAN, A.Ya.

Diffusion distillation in a three-phase polydispersed system. Izv. AN SSSR. Ser. geofiz. no.8:1214-1223 Ag '61. (MIRA 14:7)

1. Vsesoyuznyy zaochnyy lesotekhnicheskiy institut.
(Cloud physics)

PEREL'MAN, A.Ya.

Relationship between the time and speed of diffusion distillation and the physical characteristics of clouds. Trudy GGO no.120:60-72 '61. (MIRA 14:8)
(Cloud physics)

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Determining the spectrum of particles of a disperse system from its transmittance. Part 2. Opt. i spektr. 15 no.5:667-675 N '63. (MIRA 16:12)

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Determining the spectrum of particles in a disperse system from data on its transparency. Part 3. Opt. i spektr. 15 no.6:803-813 D '63. (MIRA 17:1)

SHIFRIN, K. S.; PERELMAN, A. Ya.

"Determination of the spectrum of small particles by light scattering."

paper presented at the Atmospheric Radiation Symp, Leningrad, 5-12 Aug 64.

L 10743-63 BDS

ACCESSION NR: AP3003554 S/0020/63/151/002/0326/0327

48
AUTHOR: Shifrin, K. S.; Perel'man, A. Ya. 41

TITLE: Computation of particle spectrum using data on spectral transparency

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 326-327

TOPIC TAGS: optics of turbid media, scattered light, particle spectrum, atmospheric transparency

ABSTRACT: Development of methods for computing the particle spectrum from the information contained in scattered light is one of the leading problems in the optics of turbid media. In systems in which only primary scattering need be considered, the problem is reduced to the inversion of the Fredholm integral equation of the first kind

$$\varphi(y) = \int_0^\infty F(x,y)f(x)dx, \qquad (1)$$

where f(x) is the function of particle distribution by size; F(x,y) is the nucleus of the equation, known from the theory of light scattering on a particle;

Card 1/2

L 10743-63
ACCESSION NR: AP3003554

and $\varphi(y)$ is an experimentally determined function. A new, precise inversion of equation (1.) has been obtained which imposes only moderate requirements on the accuracy of measurements and eliminates the source of major errors. The particle spectrum is computed solely on the basis of transparency. Computations for numerous examples show that when transparency is measured to an accuracy of 1%, the spectral error is of the order of 5%. The range of wavelengths in which transparency data are required is determined by

$$\lambda_{min} \simeq \beta r_M, \quad \lambda_{max} \simeq 2.5\, \beta r_M, \qquad (2)$$

where r_M is the mode of the unknown distribution. For example, for atmospheric aerosol particles at $r_M = 0.1\ \mu$, the transparency measurements should be made in the region from 0.21 to 0.52 μ, and for fog droplets at $r_M = 1\ \mu$, in the region from 2.1 to 5.2 μ. In these estimates the refractive index was assumed to be 1.33. The article was presented by Academician A. A. Lebedev, 25 February 1963. Orig. art. has: 10 formulas.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova (Main Geophysical Observatory)

Card 2/3

L 52505-65 EWT(1)/EWG(r)/FCC/EEC(t) Pe-5/Pl-4 GS/GW

ACCESSION NR: AT5011157 UR/0000/64/000/000/0067/0077

38
37

AUTHOR: Shifrin, K.S.; Perel'man, A. Ya.

TITLE: Computation of the particle spectrum using data on spectral transparency

SOURCE: Mezhvedomstvennoye soveshchaniye po aktinometrii i optike atmosfery, 5th, Moscow, 1963. Aktinometriya i optika atmosfery (Actinometry and atmospheric optics); trudy sovrshchaniya. Moscow, Izd-vo Nauka, 1964, 67-77

TOPIC TAGS: atmospheric optics, atmospheric transparency, scattered light, aerosol, particle spectrum

ABSTRACT: Determination of the particle spectrum of a disperse system from data on light scattering is a timely problem in the optics of turbide media. The purpose of this article was to develop a method for the transformation of data on spectral transparency. The basic approach to a solution of the most important case of "soft" particles was given earlier (K.S. Shifrin and V.F. Raskin, Optika i spektroskopiya, 1961, 11, 268). However, due to the poor stability of transformation problems, the direct numerical computations by means of the formula given in the earlier paper is virtually impossible. Computations are possible only after eliminating the factors responsible for the instability of the solution. This problem is solved in the present paper. The approach given

Card 1/2

L 52505-65

ACCESSION NR: AT5011157

here in detail makes it possible to compute the spectrum of particles of the system solely on the basis of data on its transparency without making any additional assumptions concerning the character of the spectrum. The paper is divided into 10 sections: 1. Introduction. 2. Inversion formula. 3. Computation of the parameter L(p). 4. Basic equation. 5. Use of the principal equation in the case of tabulated transparency values. 6. Broadening of the principal band. 7. Use of the principal equation for a case of analytical stipulation of transparency. 8. Computation of the particle spectrum for tabular (graphic) stipulated transparency. 9. Evaluation of the accuracy of the computation method. 10. Spectral region and Conclusion. The developed method gives a precise solution of the problem of determining the particle spectrum from information contained in scattered light. It is considerably superior to methods in which the system is related a priori to some distribution and information on scattering is used to determine the unknown characteristics of this distribution. Orig. art. has: 41 formulas, 1 figure and 3 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 25Nov64 ENCL: 00 SUB CODE: OP, ES

NO REF SOV: 010 OTHER: 001

Card 2/2 L

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Determining the spectrum of particles of a disperse system from data on its transparency. Part 4. Opt. i spektr. 16 no.1:117-128 Ja '64. (MIRA 17:3)

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Reversion of the indicatrix for "soft" particles. Dokl. AN SSSR 158 no.3:578-581 S '64. (MIRA 17:10)

1. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova i Vse.o-yuznyy aochnyy lesotekhnicheskiy institut. Predstavleno akademikom A.A. Lebedevym.

SHIFRIN, K.S.; PEREL'MAN, A.Ya.; POTEKHINA, L.K.

Tables for calculating the spectrum of particles of a disperse system on the basis of its transparency. Trudy GGO no.152:192-211 '64. (MIRA 17:7)

L 64322-65 EWT(1)/EWG(v)/FCC GW

ACCESSION NR: AP5022921 UR/0362/65/001/009/0964/0972

551.521.3

AUTHOR: Shifrin, K. S.; Perel'man, A. Ya. 44,55 35 32 B

TITLE: Stability of the computational scheme in processing light-scattering data

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 9, 1965, 964-972

TOPIC TAGS: light scattering, transparency method, turtid layer, turbidity, particle distribution, atmospheric optics 44,55,12

ABSTRACT: The effect of incomplete and inaccurate optical data concerning the turbid layers on the preqision of determining the function of particle distribution by means of the transparency and scattering pattern method is examined. A direct check, based on theoretical models, of the stability of the two methods is applied to the mechanism of the computational scheme. Questions related to the validity of the physical assumptions made in the construction of the model of the turbid medium in both the transparency and the indicatrix methods are not discussed. The results of computations show that both methods make it possible to calculate the function of particle distribution of the dispersion system from appropriate optical data with an acceptable degree of accuracy. On the basis of the analysis of typical examples,

Card 1/2

L 64322-65

ACCESSION NR: AP5022921

recommendations are made with respect to a rational selection of the wavelengths of the spectral intervals (angle intervals) and the number of transparency measurements (angles). Orig. art. has: 31 formulas, 5 figures, and 2 tables. [DM]

ASSOCIATION: Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova (Main Geophysical Observatory)

SUBMITTED: 29Mar65 ENCL: 00 SUB CODE: ES, OP

NO REF SOV: 004 OTHER: 000 ATD PRESS: 4013

Card 2/2

ACC NR: AP6022219 SOURCE CODE: UR/0362/66/002/006/0606/0616

AUTHOR: Perel'man, A. Ya.; Shifrin, K. S.

ORG: Main geophysical observatory (Glavnaya geofizicheskaya observatoriya)

TITLE: Calculation of optical characteristics of dispersive systems with a narrow distribution

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 6, 1966, 606-616

TOPIC TAGS: light scattering, atmospheric optics, aerosol, aerosol optical property

ABSTRACT: The authors have chosen a family of gamma function distributions as a model for individual particle light dispersive characteristics. With the help of this model and a modified stationary phase method, a general asymptotic formula has been developed, representing the structure of the dispersed radiation field in the case of narrow dispersive systems. The range of validity and practical applicability of the obtained formula has been evaluated. The formula has been used for the computation of polydispersed optical characteristics pertinent to the methods of transparency, the scattering function and small angles. The results show the oscillating nature of the optical characteristics in the case of almost monodispersive systems. Orig. art. has 63 formulas.

SUB CODE: 13, 20/ SUBM DATE: 25Dec65/ ORIG REF: 006/ OTH REF: 001

Card 1/1 UDC 551.593.5

L 31497-66 EWT(l)/T IJP(c)
ACC NR: AP6013026 SOURCE CODE: UR/0051/66/020/004/0692/0700

AUTHOR: Shifrin, K. S.; Perel'man, A. Ya.; Bakhtiyarov, V. G.

ORG: none

TITLE: Determination of the spectra of particles of a disperse system from data on its transparency. VI. Experimental verification of the method by means of models

SOURCE: Optika i spektroskopiya, v. 20, no. 4, 1966, 692-700

TOPIC TAGS: spectral distribution, optic transmission, particle spectrum, optic dispersion

ABSTRACT: The first five parts of the article (Opt. i spektr. v. 15, 533, 667, 603, 1963; v. 16, 117, 1964; v. 20, 143, 1966) dealt with a theoretical method for determining the spectrum of particles in a disperse system by determining the spectral transparency, and contained formulas derived on the basis of certain assumptions and theoretical models. The present article discusses the difficulties which arise in experimentally checking this method and describes experiments made on several two-dimensional models of turbid media. These were either spores of fungi Calvatia, on a dry plate made of KRS-5, or dispersed single crystals of AgBr

Card 1/2

UDC: 541.182 + 535.345.1.001.1

L 31497-66
ACC NR: AP6013026 O

in gelatin, placed on a quartz plate. The spectral transparency was measured with standard instruments in the 0.24-1.1 and 2-25 mm ranges. The distribution of the dimensions of the spores or the AgBr were measured with an electron microscope and the size distribution was determined microphotographically by a sampling technique, since the plane model did not fit the field of view of the electron microscope. The spectra obtained with the electron microscope and by the transparency method were found to be in satisfactory agreement. Orig. art. has: 6 figures and 13 formulas.

SUB CODE: 20/ SUBM DATE: 24Oct64/ ORIG REF: 010/ OTH REF: 001

Card 2/2 fnc

SHIFRIN, K.S.; PEREL'MAN, A.Ya.

Calculation of the spectrum of particles according to information on the transparency of the dispersion system. Trudy GGO no.170: 3-36 '65.

Spectral transparency of nearly monodisperaion systems. Ibid.:37-60 (MIRA 18:9)

ACCESSION NR: AT4002178 S/2922/63/005/000/0090/0113

AUTHOR: Shifrin, K. S. (Leningrad); Perel'man, A. Ya. (Leningrad)

TITLE: Kinetics of the crystallization of semidispersed clouds

SOURCE: Vses. nauchn. meteorologich. soveshch. Trudy*, v. 5. Sektsiya fiziki svobodnoy atmosfery*. Leningrad, 1963, 90-113

TOPIC TAGS: meteorology, cloud study, sublimation kinetics, isothermal sublimation, ice crystal spectrum, cloud dispersion, gravitational coalescence, cloud microstructure, Cauchy problem, cloud crystallization

ABSTRACT: The kinetics of sublimation of spherical particles are considered for the case of a super cooled mixed cloud with adequate vertical development (see Fig. 1 of the Enclosure). A simplified and a basic calculation procedure for the process is presented in detail. The motion and curvature of the particles, as well as the spectra of the ice crystals, are ignored in descriptions of isothermic sublimation provided by either procedure. Furthermore, monodispersivity of water droplets is assumed for the simplified procedure and the liquid phase spectrum is considered in the basic procedure. It is shown that corrections for curvature and the crystalline spectrum of the particles

Card 1/4

ACCESSION NR: AT4002178

can be omitted. Use of formulas from the simplified procedure permits sufficient accuracy in describing the entire process qualitatively and characterizing the effects of numerous physical parameters (Q_0, t, m, n, etc.) on the rate of conversion T*. The latter value depends on those parameters and can be determined directly from input data (see Table 1 of the Enclosure); in practical cloud seeding, m is governed by the quantity of seeded agent, n by cloud structure, and Δ c by cloud temperature. The simplified procedure can be used in quantitative calculations for narrow droplet spectra or standard spectra where $Q_0 \leq 1.5$ c. The spectra must be considered when greater widths are involved and this represents the most significant correction in the simplified procedure (up to 50% when determining T*). The correction for nonisothermic character is 10-20%, compared to 5-6% for motion of the particles. The basic procedure, when corrected for the two latter factors, describes sublimation of spherical particles accurately to within 3-5%. Orig. art. has: 5 figures, 8 tables, and 101 formulas.

ASSOCIATION: None

SUBMITTED: 00	ATD PRESS: 3056	ENCL: 02
SUB CODE: LS	NO REF SOV: 015	OTHER: 002

ACCESSION NR: AT4002178 ENCLOSURE: 01

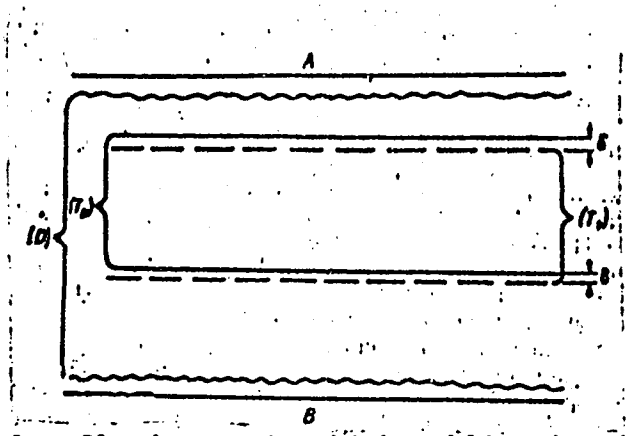


Fig. 1. Cloud area in which sublimation is considered

A and B - cloud boundaries; D - interval cloud area; (T_0) and (T_1) - position of a layer at the inception and termination of sublimation; δ - displacement magnitude.

Card 3/4

L 1816-66 EWT(1) GW

ACCESSION NR: AT5025225 UR/2531/65/000/170/0003/0036

AUTHOR: Shifrin, K. S.; Perel'man, A. Ya.

TITLE: Computing the spectrum of particles from data on the transparency of a dispersed system

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 170, 1965. Issledovaniye radiatsionnykh protsessov v atmosfere (Investigation of radiation processes in the atmosphere), 3-36

TOPIC TAGS: longwave radiation, dispersed system, soft particle scattering, transparency, polydispersed scattering

ABSTRACT: The authors discuss a precise method for determining the spectrum of soft particles in a dispersed system, which is based on an experimental determination of the system's transparency (a function of the relationship between the coefficient of polydispersed scattering and wavelength). Exact formulas are derived for a one-to-one transformation for the direct and inverse problem of single scattering by soft particles true for a general case of an arbitrarily scattered system. Computations are presented for the basic transformations, asymptotic evaluation of transparency for large wave numbers, derivation of general transformation

Card 1/2

L 1816-66

ACCESSION NR: AT5025225

formulas for experimentally determined input functions, coefficients, selection of a unit scale and the steps of a quadrature formula, derivation of working formulas for computing the spectrum of particles, gamma distributions ($\mu = 0$) and ($\mu > 0$, μ is an integer), computation of particle spectra from experimentally determined transparency, and verification of transformation formulas using experimentally derived input data. Numerous examples are cited to illustrate the rigidity of the computational scheme. Tables are included to facilitate computation. Orig. art. has: 14 formulas, 13 tables, and 8 figures. [SP]

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES, NP

NO REF SOV: 008 OTHER: 001 ATD PRESS: 4111

Card 2/2

L 3642-66 EWT(1)/FCC GW

ACCESSION NR: AT5025226 UR/2531/65/000/170/0037/0060

AUTHOR: Shifrin, K. S.; Perel'man, A. Ya. 44,55 44,55

TITLE: Spectral transparency of almost monodispersed systems

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 170, 1965. Issledovaniye radiatsionnykh protsessov v atmosfere (Investigation of radiation processes in the atmosphere), 37-60

TOPIC TAGS: atmospheric optics, atmospheric transparency, particle size distribution, polydispersion, monodispersion, transparency spectrum, light scattering, atmospheric scattering

ABSTRACT: The effect of the parameters of polydispersion, particularly the width of distribution Δr, on the transparency of the system is investigated. Monodispersed scattering of light is regarded as the limiting case of polydispersed scattering, which can be represented by a series of delta-shaped distribution curves whose properties are used to compute, by a modified saddle-point method, the integral representing the polydispersed scattering coefficient. Scattering in an almost monodispersed system is regarded as monodisperse with a correction factor. Analysis begins with consideration of a polydispersed system of particles whose optical properties differ little from those of the surrounding medium.

Card 1/3

L 3642-66
ACCESSION NR: AT5025226

Changes in the spectral transparency of the system are investigated along two lines. In the first, different distribution widths are considered for constant mean-square radius $\overline{r_2}$ (transparency remains constant for small λ). In the second line of investigation, the mode of the distribution r_M is fixed. Formulas are derived for determining transparency with constant $\overline{r_2}$ and r_M. It is assumed that the particle-size (radii) spectrum is described by a gamma-distribution and the scattering cross section is an arbitrary analytic function whose argument is proportional to the product $r\nu$ (ν is the wave number). An expression is derived for the optical characteristics (for example, transparency) of almost monodispersed systems. The range of applicability of these formulas is evaluated. Calculations are presented which illustrate details of the spectral structure of transparency as the distribution width is narrowed (transition to the monodispersed case). The connection between dimensionless characteristics of transparency for different linear scales is established, and a formula is derived for determining transparency when the linear scale is changed. Curves of the spectral transparency of different polydispersed systems are presented to illustrate the application of the formulas. Orig. art. has: 9 figures, 136 formulas, and 4 tables. [EO]

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

44,55

Card 2/3

L 3642-66
ACCESSION NR: AT5025226 O

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 006 OTHER: 000 ATD PRESS: 4116

Card 3/3

L 1595-66

ACCESSION NR: AP5024776 UR/0219/64/058/009/0102/0106

AUTHOR: Perel'man, A. Ye. 20 B

TITLE: Effect of large doses of caffeine on the creation of immunity to tuberculosis in vaccinated albino mice

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 58, no. 9, 1964, 102-106

TOPIC TAGS: tuberculosis, central nervous system, medical experiment, immunization, mouse, vaccine, respiratory system disease

ABSTRACT: Immunization of albino mice with 0.5 milligrams of BCG vaccine, while effective in assuring a milder course of the disease after infection with virulent mycobacteria culture, caused severe allergic reactions in the lungs immediately following infection. Daily administration of 5-7 milligrams of caffeine during the 34 days between vaccination and infection reduced the allergic reactions and somewhat increased the effectiveness of the immunization. Vaccination with 1 milligram of BCG was highly effective, with a moderate allergic reaction in the lungs immediately after infection.

Card 1/2

L 1595-66
ACCESSION NR: AP5024776

Administration of caffeine almost completely depressed the allergic reaction but the course of the tuberculosis process in them was somewhat more severe due to reduction of immunization effectivity. This is ascribed to the lowering of the general reactivity of the organism by the prolonged overstraining of the stimulating process in the cerebral cortex. The results obtained indicate the dependence of the immunological reorganization of the organism's reactivity, due to vaccination with BCG, on the functional state of the higher parts of the central nervous system.
Orig. art. has: 1 table, 4 graphs.

ASSOCIATION: Laboratoriya eksperimental'noy patologii i terapii, Leningradskogo nauchno-issledovatel'skogo instituta tuberkuleza (Laboratory of Experimental Pathology and Therapy, Leningrad Scientific-Research Institute of Tuberculosis)

SUBMITTED: 12Jul63 ENCL: 00 SUB CODE: LS

NR REF SOV: 004 OTHER: 003 JPRS

Card 2/2

PEREL'MAN, A.Ye., linicheskiy ordinator

Study of the influence of the nervous system on the formation of immunity to tuberculosis in white mice; report No. 2. K izuch. roli nerv.sist.v pat., immun.i lech.tub. no.2:314-322 '61.
(MIRA 15:10)

1. Iz laboratorii eksperimental'noy patologii i terapii (zav. - G.S.Kan) Leningradskogo nauchno-issledovatel'skogo instituta tuberkuleza.

(TUBERCULOSIS) (IMMUNITY) (NERVOUS SYSTEM)
(CAFFFINE--PHYSIOLOGICAL EFFECT)

PEREL'MAN, A.Ye.

Bits manufactured by the Verkhne-Serginskiy Plant. Neftianik 7 no.7: 15-16 Jl '62. (MIRA 16:3)
(Ural Mountain region--Oil well drilling--Equipment and supplies)

PEREL'MAN, A.Ye., klinicheskiy ordinator

Study of the influence of the nervous system on the formation of immunity to tuberculosis in white mice; report No.1. K izuch.roli nerv.sist.v pat., immun.i lech.tub. no.2:301-313 '61.
(MIRA 15:10)

1. Iz laboratorii eksperimental'noy patologii i terapii (zav. - G.S.Kan) Leningradskogo nauchno-issledovatel'skogo instituta tuberkuleza.

(TUBERCULOSIS) (IMMUNITY) (NERVOUS SYSTEM)

PEREL'MAN, B.I.; LAPSHUN, A.I.

Automatic control of centrifugals for high-grade massecuites.
Sakh.prom. 30 no.4:34-38 Ap '54. (MLRA 9:8)

1. Giprosakhar (for Perel'man); 2. Krasnopresnenskiy sakharo-rafinadnyy zavod (for Lapshun)
(Sugar machinery) (Automatic control)

Perel'man, B. I.

USSR/Processes and Equipment for Chemical Industries-- K-2
Control and measuring devices. Automatic regulation.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10670

Author : Perel'man, B. I. and Lapshun, A. I.
Inst : Not given
Title : Automation of Centrifuges for the Purification of Refined Sugar

Orig Pub: Sakharnaya prom-st, 1956, No 4, 34-38

Abstract: The projected installation of an automatic control system for a battery of six centrifuges at the Krasnopresnensk Sugar Refinery is described. Completely automatic startup and cutout of the electric drives for the centrifuges, braking, and stopping of the centrifuges, loading and unloading, water dosage for washing the drums of the centrifuges and for the wash syrup, and starting of the segregator are provided for. The entire battery of centrifuges will be controlled by one operator whose duties will consist in regulating

Card 1/2

USSR/Processes and Equipment for Chemical Industries-- K-2
Control and measuring devices. Automatic regulation.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10670

Abstract: the length of loading of the "fugovka," the clear liquor feed, and all other steps in the cycle as a function of the quality of the cooked liquor. The function and design of the various elements of the control system are discussed.

Card 2/2

ACCESSION NR: AT4026343 S/0000/62/000/000/0021/0048

AUTHOR: Perel'man, B. I.

TITLE: Comparison of the parameters of logical circuits using ferrite diodes, ferrite transistors, semiconductors and vacuum tubes

SOURCE: Konferentsiya po obrabotke informatsii, mashinnomu perevodu i avtomaticheskomu chteniyu teksta. Moscow, 1961. Vy*chislitel'naya i informatsionnaya tekhnika (Information processing and computer technology); sbornik materialov konferentsii. Moscow, 1962, 21-48

TOPIC TAGS: circuit, diode, transistor, semiconductor, vacuum tube, logical design, ferrite diode, ferrite transistor, circuit parameter

ABSTRACT: The author notes that, despite the great importance attributed to automation, there are as yet no standards for the logical elements, of which automation, monitoring, control and telemetry systems are constructed. In this report, an attempt is made to compare the qualities of ferrite-diode elements, developed at the Laboratoriya Elektromodelirovaniya (Laboratory for Electrosimulation) and circuits in which these elements are used, with certain other concrete elements and circuits: ferrite-transistor, semiconductor and tube. These devices are considered by the author from the point of view of:

Card 1/3

ACCESSION NR: AT4026343

i) speed of operation; b) life-time; c) economy, including the factors of cost, current consumption and heat removal; d) complexity of the power supply sources; e) facility of installation and operation; f) mechanical strength; g) permissible environmental temperature; h) permissible humidity; i) size and weight. At the same time, a comparison is drawn between operational methods with different elements during the design and exploitation of the devices. In view of the complexity of the power supply system for ferrite-diode elements, particular attention is given to precessive pulse sources, their efficiency, advantages and shortcomings. A comparative analysis was made for one of the basic logical elements - "AND" of various types, as well as for the simplest kind of counter circuits. On the basis of the analysis made, the following conclusions are drawn: Tube-type circuits, although superior in terms of speed of operation, yield to the other elements considered in compactness, life-time, economy, etc. Ferrite-diode systems, constructed of materials presently least in short supply, are, in the opinion of the author, the most favorable for industrial automation circuits at repetition frequencies to 3-5 kc and, perhaps, to 10 kc. Increased frequency leads, in the case of these elements, to an increase in their current consumption, size and complexity of the power supply sources and, consequently, complexity of adjustment as well, resulting in lowered reliability. At frequencies of 30-300 kc, the preference, in terms of simplicity of the power supply sources, performance, economy, etc., must be given to the ferrite-transistor elements. Complex computer and information machines should, evidently, be constructed on the basis

Card 2/3

ACCESSION NR: AT4026343

of high-speed (particularly, semiconductor) elements. These conclusions were arrived at through a comparison of element parameters and simple logical circuits. Howver, the author points out, for a strict solution of the problem of selection of elements, it is necessary to consider the structure of the device as a whole in each concrete case. Orig. art. has: 12 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 28Jun62 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: CP NO REF SOV: 004 OTHER: 004

2/3

Card

ACCESSION NR: AT4026345 S/0000/62/000/000/0057/0081

AUTHOR: Perel'man, B.I.

TITLE: Semiconductors in magnetic decoder control devices and fast-carry keys for ferrite-diode parallel-action circuits

SOURCE: Konferentsiya po obrabotke informatsii, mashinnomu perevodu i avtomaticheskomu chteniyu teksta. Moscow, 1961. Vy*chislitel'naya i informatsionnaya tekhnika (Information processing and computer technology); sbornik materialov konferentsii. Moscow, 1962, 57-81

TOPIC TAGS: circuit design, semiconductor, magnetic decoder, decoder control device, ferrite diode circuit, decoder, fast carry key

ABSTRACT: The article is in two parts. In the first, the author describes the mock-up of a 256-address decoder with a small number of control circuits. By way of introduction, the circuit diagram of a 4-address decoder is first considered. This device uses a set of ferrite cores, with rectangular hysteresis loop, through which there have been run, according to a definite law, wires along which pass the pulses of the current for writing, forbiding and reading. The number of cores equals the number of output circuits; in this case - four. The operation of this circuit is analyzed and its characteristics are

Card 1/5

ACCESSION NR: AT4026345

discussed. The pulse parameters of the forbid, write and read current are derived and the functions of the control signals in the circuit arrangement are traced. The author describes in detail the design of the control amplifiers and the phase inverters. The 256-address decoder developed is mounted on a textolite plate 5 mm thick and measuring 450 X 350 X 5 mm; the control amplifiers are mounted on textolite laminae 100 X 60 mm in size. The set of amplifiers is located on the same plate as the decoder. Nonshielded wiring is used in the assembly of the different units. The rectifier unit for the amplifier power supply, as well as the elements from which the pulses reach the control amplifier inputs, are remoted from the decoder and connected with it by braided unshielded wire. The decoder cores are manually wound. In order to facilitate wiring, the cores were installed in groups of 32 each and later connected by crosspieces. The decoder with writing and forbidding amplifiers, as well as with inversion elements, was tested for the following points: 1) appearance of the write and forbid signals; 2) law governing the selection of the address as a function of the control signal code; 3) appearance of the signal at the output winding of the working core and of the interference on the output windings of the unselected cores of the decoder; 4) address selection law, appearance of signal and noise pulses under the following conditions: a) change in the amplitude of the signals reaching the amplifier input; b) change in the amplifier feed voltage; c) change in the environmental temperature; d) extended running. The results of these tests are

Card 2/5

ACCESSION NR: AT4026345

given and interpreted. The author concludes, on the basis of his study, that it is advisable to design a control circuit for a magnetic decoder using semiconductor elements. The use of P14-P15 triodes in a parallel operation mode is, in this circuit, a temporary but permissible measure. The employment of triodes in a mode close to saturation with individual feedback resistance (5 ohms) for each triode and a current-equalizing resistance of 100 - 150 ohms in the collector circuit makes it possible to eliminate preliminary sampling of the triodes. In addition, if high-quality triodes of the required power are available, each control amplifier can be built with but one triode, according to the circuit proposed. The second part of the paper considers fast-carry keys using semiconductors for parallel-action ferrite-diode circuits. It is pointed out, in the introduction, that one of the defects of three-cycle ferrite-diode elements is the unwieldiness of the parallel-action circuits. The fact that the operating speed of keys used in carry circuits must be many times greater than that of the magnetic elements is noted and the consequences of this fact, and the difficulties to which it gives rise, are analyzed on the basis of various possible models; primarily through the use of ferrite-tube keys. The shortcomings of these techniques are pointed out. The author then describes a type-"3" fast-carry key, developed at the Laboratoriya elektromodulirovaniya VINITI (Laboratory for Electro-simulation) which makes use of semiconductor elements. The forbid elements of the key, through which passes the through-carry signal, contain a diode, ondfer-core transformer and ohmic resistance. Thus, the delay of the carry signal is determined, principally, by

Card 3/5

ACCESSION NR: AT4026345

the properties of the diodes used and by the value of the load connected to each digit. The use of type D10 diodes and high-ohm loads made possible a delay per digit of not more than 50 millimicroseconds. In the mock-up, containing nine keys, connected in an arrangement imitative of the circuit of a nine-bit adder, tests were run of the basic parameters; mainly, the total delay, operability and stability. The key and its constituent elements are described in detail and the test results are analyzed. The work demonstrates the possibility of using semiconductor fast-carry keys in ferrite-diode parallel-action circuits. In order to utilize the keys in concrete models, it is necessary, as indicated in the article, to increase the amplifier gain factor and the amplitude of the output signal. The principle, underlying the type "3" key just considered, can be easily extended to the type "T" fast-carry keys, which are the subject of the concluding section of the article. In this section, the author describes type "T" transistor keys for fast-carry circuits and a calculator in which these keys are used, based on the same principle as in the case of the type "3" diode keys. An extended checkout of various modifications of the keys in the calculator and in other devices at different temperatures showed that they have a high degree of reliability. During a year's period in 24 keys not a single component failed. The delay in one key is approximately 0.05 microseconds. Signal attenuation in 13 keys is on the order of 30%. Fluctuations in the parameters of the circuit elements of as much as 50% and interchanging of the triodes has no disruptive effect on normal operation, nor

Card 4/6

ACCESSION NR: AT4026345

is there any need for triode sampling (preselection). The basic defect of the keys is the use of a large number of triodes in each key, but here too there are certain compensating factors. Of all the key circuits considered, the latter is the most economical, long-lasting and reliable. Orig. art. has: 2 tables and 18 figures.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: CP NO SOV REF: 004 OTHER: 002

Card 5/5

L 12234-63 BDS

S/271/63/000/004/036/045

46

AUTHOR: Perel'man, B. I.

TITLE: A comparison of the parameters of ferrite-diode, ferrite-transistor, semiconductor and tube logical circuits

PERIODICAL: Referativnyy zhurnal, Avtomatika, telemekhanika i vychislitel'naya tekhnika, no. 4, 1963, 30, abstract 4B169 (Vychisl. i inform. tekhnika, Moscow, 1962, 21-48)

TEXT: The author gives descriptions, and a comparison of the characteristics of several logical circuits (C) used in computers, telemetering and automatic control. In choosing the type of logical elements, the speed of their operation commonly plays the prime role. If we raise the high-speed response of these elements by a factor of one-and-one-half, it is possible to replace a line of parallel-action C by a sequential-action C, and thereby lower the number of elements needed. Assembly and adjustment are simplified, and reliability is correspondingly raised. Tube circuits, having superiority in high-speed response, fall behind when it comes to compactness, longevity, economy, etc. Ferrite-diode C are the most favorable for devices in industrial automation with repetition rate up to 10 kc. At frequencies of 30 - 300 kc advantages in the way of simplicity of power supply, labor

Card 1/2

L 12234-63

S/271/63/000/004/036/045

A comparison of the parameters .....

input, economy, and the like, belong to ferrite-transistor elements. High-quality transistors afford transistor elements of frequency up to 2 Meg. Circuits based on tunnel diodes operate at frequencies up to 100 Meg. Circuits based on tunnel diodes operate at frequencies up to 100 Meg; parametrons based on diodes, up to 100 Meg and even higher. There are 12 illustrations, 1 table, and a bibliography of 8 items. V. S.

[Abstracter's note: Complete translation]

Card 2/2

YATSKEVICH, N.; PEREL'MAN, B.

Use of chemicals and a new technology. Mor. flot. 24 no.8:28-29 Ag '64. (MIRA 18:9)

1. Nachal'nik laboratorii Sovgavanskogo sudoremontnogo zavoda (for Yatskevich). 2. Starshiy tekhnolog tekhnicheskogo otdela Sovgavanskogo sudoremontnogo zavoda (for Perel'man).

L 32896-65 EWT(1)/EWT(1)/T/EWP(1)/EED-2/EWA(h) Pz-6/Po-4/Pq-4/Pg-4/Peb/Pk-4
IJP(c) BB/GS/GG/AT
ACCESSION NR: AT5004148 S/0000/64/000/000/0135/0145

51
B+1

AUTHOR: Perel'man, B. I.

TITLE: Semiconductors in parallel-action ferrite-diode circuits

SOURCE: AN SSSR. Institut nauchnoy informatsii, Informatsionnyye sistemy (Information systems). Moscow, 1964, 135-145

TOPIC TAGS: diode circuit, ferrite diode circuit, semiconductor circuit, parallel circuit, carry gate, transistor, junction gate, counter circuit

ABSTRACT: The article deals with material relating to transistorized fast-carry gates of the "Z" type, parallel-action counters using ferrite-diode elements with [illegible] and junction gates. There is also a brief re-

author illustrates the manner in which the ...

Card 1/3

L 32896-65
ACCESSION NR: AT5004148

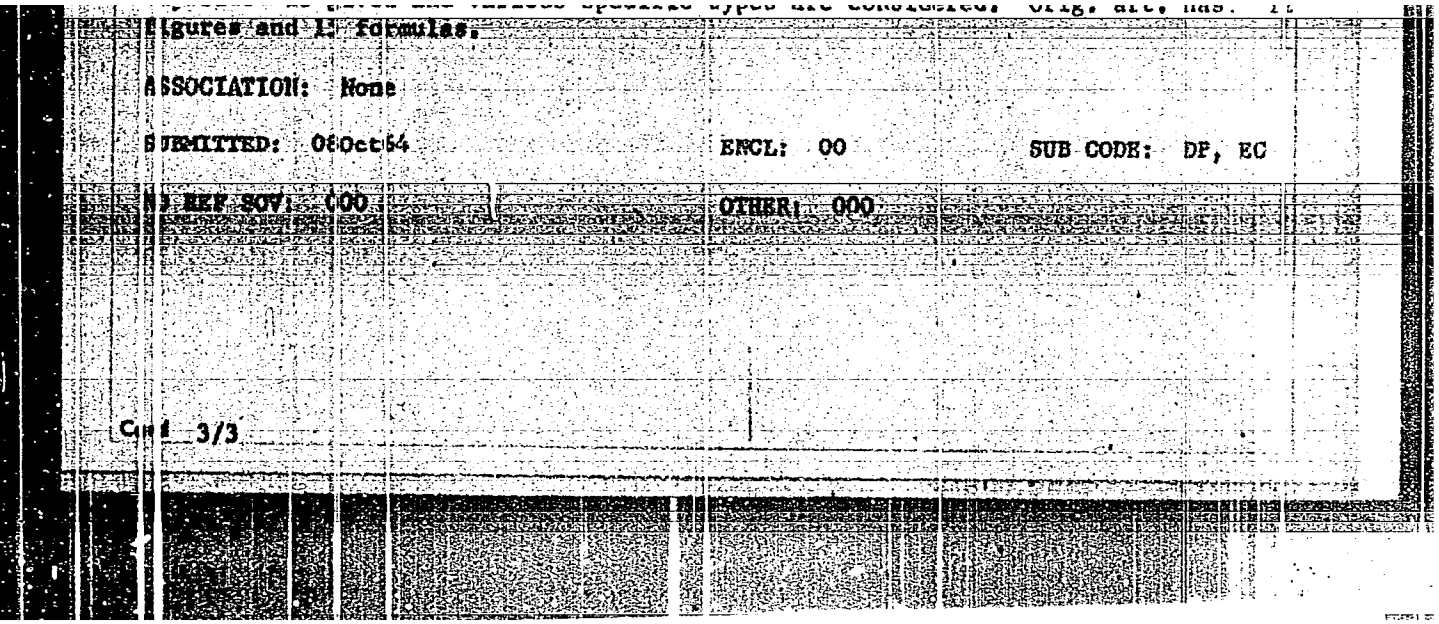
calculated, showing in all instances the appropriate mathematical formulae. These parameters include, among others: the resistance of the triodes (P16) in the open state, the resistance of the blocked triode, signal attenuation with the gate closed and open, amplifier input impedance, signal voltage at the amplifier base, collector current of the amplifier triode. The author discusses the original circuitry of a parallel-action counter using ferrite-triode elements with transistorized "AND" gates in the carry-over circuits, designed in the form of a 14-place device. The more salient characteristics of this counter are described: the 14-place counter employed (for example, 14 "AND" gates), 14 ferrite-diode triggers and 28 junction elements. The advantages of gates with positive input ... the author are considered. The

...inal section of the article deals with so-called "junction" or "transition"
...lements. The need for such elements is explained by the author in the following
...ashion: The form of the signal at the output of a ferrite-diode element(its
...mplitude, rise-time, duration and shift) depend on the magnitude of the load,
...e., on the number of other elements connected to the output of the element under
...onsideration. However, in fast "AND" and "Z" gates the signals must coincide on
...oth inputs. Should, for example, a signal from a ferrite-diode element loaded

Card 2/3

L 32896-65
ACCESSION NR: AT5004148

...ith a single element reach the first input of a "Z" gate while a signal from an
...lement loaded with 5 other elements reaches the other (prohibiting) input, the
...ignals would not coincide in time. Therefore, in order to eliminate the depen-



figures and 11 formulas.

ASSOCIATION: None

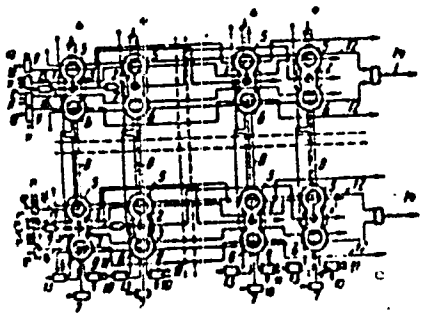
SUBMITTED: 08Oct64 ENCL: 00 SUB CODE: DP, EC

NO REF SOV: 000 OTHER: 000

Card 3/3

ACC NR: AP7005605

Fig. 1. Memory device



1, 2 - Multi-aperture transfluxors forming the memory cell; 3 - coupling windings; 4 - vertical sensing lines; 5, 6 - horizontal sensing lines; 7 - sensing oscillator; 8 - vertical read-in and erase line; 9 - oscillator switch; 10 - signal inputs to the oscillator-switch; 11 - control inputs to the oscillator-switch; 12 - vertical output line; 13 - output indicator; 14 - horizontal output line; 15, 16 - even selection lines.

by performing in it a number of logic operations during write-in, it contains two horizontal selecting lines, one of which passes through the large and the other through the small apertures of each line. Oscillator-switches of positive and negative polarity, and also of zero-level control outputs which are connected to the selecting, write-in and erase lines also contribute to the accomplishment of these goals. Orig. art. has: 1 figure. [IV]

SUB CODE: 09/ SUBM DATE: 15Dec65/ ATD PRESS: 5117

Card 2/2

AUTHOR: Perel'man, B. I.

TITLE: Start-stop switching of the read-out current pulses of ferrite-diode elements

SOURCE: AN SSSR. Institut nauchnoy informatsii. Informatsionnyye sistemy (Information systems). Moscow, 1964, 146-156

TOPIC TAGS: ferrite diode circuit, semiconductor circuit, read out pulse, start stop switching, magnetic memory, transistor amplifier, cancel pulse

ABSTRACT: The author notes that three-cycle ferrite-diode elements are normally fed by periodic three-phase read-out current pulses with an amplitude of 5 - 5.5 amperes, duration of 22 microseconds and rise-time of 1.8 - 2.5 microseconds. At the same time, ferrite-diode elements can be fed over a particular channel by means of start-stop pulses of identical amplitude and rise-time, i.e., non-periodic pulses received at a specific moment of time in cycle with the corresponding channel (in this case, the elements will also function as a memory element). For example, the first two channels are fed by conventional periodic pulses, while the third channel is fed by start-stop pulses. The cores of the first two elements

Card 1/4

32897-65

ACCESSION NR: AT5004149

re magnetized for the time corresponding to the first two channels, performing he necessary logical operation and thus ensuring the recording of the result of he operation on the output cores. The result is stored until a start-stop read- ut signal reaches the winding of the third channel. The author describes a ransistorized amplifier-source of start-stop signals, designed to provide cancel nd read-out pulses with an averaged repetition frequency of 30 kc. An analysis s made of the basic technical requirements which must be met by such a source. schematic diagram of the transistorized start-stop pulse source is given (two- tage transistor amplifier with transformer input), along with oscillograms of he signals produced by the device. Investigations showed that for complete ancellation a current pulse of not less than 5A and a duration of not less than microseconds are required. The author notes, in his overall description of he operation of this device, that certain cancellation modes are extremely criti- al, since the windings of the magnetized cores of the second pair of ferrite- iode elements may be shunted by small resistances, both from the input as well s from the output winding. The shunting resistances are constituted by the inding resistances of the first and third pair of unmagnetized cores, these re- istances being connected in series with the resistance of the diodes. Therefore, he magnetization process is lengthened, while the values of the current required

Card 2/4

L 32897-65

ACCESSION NR: AT5004149

for cancellation, and its rise-time, is increased. This point is illustrated by an example and confirmed experimentally. Further study showed that the first version of the transistorized start-stop pulse source did not have sufficient electrical strength. The author therefore proposed start-stop switching of current pulses (obtained with a tube-type or magnetic source) using transistorized switches. It is shown in the article that this system makes it possible to reduce the number of triodes in the switch by a factor of 2, in comparison with the first version, and the dimensions by a factor of 4. The main point, however, is that the transistors in the switch operate in a pulse mode with far less dispersed power than in the first version, thus ensuring the necessary electrical strength for the system. The start-stop pulses of the required form, duration and amplitude are shaped in a supplemental source and reach a large number of switches at the same time. The use of the type of switches employed in the author's version goes a long way toward the elimination of the time-shift difficulties encountered in the first model. The number of power triodes is likewise reduced from 4 to 2. The start-stop switch proposed by the author is diagrammed and fully explained in the article, and the operation of a general-purpose start-stop source is described. The generator mock-up with a 40-ferrite-diode element device and five start-stop switches connected in parallel was tested under lab-

Card 3/4

L 32897-65
ACCESSION NR: AT5004149

oratory conditions for a half-year period. The tests confirmed that in the pulse-switching mode the P601 and P602 triodes, with no DC feed, function with complete reliability in this system. In a separate appendix attached to the article the author has calculated certain of the more important parameters of the switches. A defect of the system described in this paper is the need for a supplementary pulse generator and circuits for the transmission of the switched signals from the generator to all the units. "Technician L. A. Korzinov took part in the development of these devices." Orig. art. has: 8 figures and 1 appendix.

ASSOCIATION: None

SUBMITTED: 08Oct64 ENCL: 00 SUB CODE: EC, DP

NO REF SOV: 001 OTHER: 000

Card 4/4

L 9288-66 EWT(l)/EWT(m)/EEC(k)-2/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD
ACC NR: AT5025635 SOURCE CODE: UR/2657/65/000/013/0086/0100

AUTHOR: Nikolayevskiy, I. F.; Perel'man, B. L.

ORG: none

TITLE: High-frequency germanium alloy-diffused p-n-p transistor 1T308

SOURCE: Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, no. 13, 1965, 86-100

TOPIC TAGS: germanium transistor, HF transistor, alloy diffused pnp transistor, flip flop circuit, 1T308 transistor

ABSTRACT: The basic manufacturing processes and design characteristics of a new germanium alloy-diffused transistor of the 1T308 type are described. In the final p-n-p structure of the transistor, germanium acts as the collector, the thin n-layer as the active base, and the recrystallized p-layer as the emitter. The transistor, which possesses highly stable characteristics against external mechanical and climatic effects, has the following basic parameters: maximum permissible dissipated power, 150 mw; maximum collector (emitter) current, 50 mamp; collector capacitance, 8 μμf; collector time constant, 500 nanosec; and maximum collector-emitter voltage, 12 v. The 1T308 transistor is designed as a pulsed device which can operate on large signals in saturating flip-flop circuits, blocking-generators, relays, and logical and memory elements. It can also be used both as a high-frequency amplifier, a generator of harmonic oscillations of small and large signals, and as an element operating in

Card 1/2 UDC: 621.382.342.029.62

L 9288-66
ACC NR: AT5025635

Nonsaturating flip-flop and video amplifier circuits. Orig. art. has: 13 figures and 5 tables. [JR]

SUB CODE: 09/ SUBM DATE: none/ ATD PRESS: 4153

EPC

Card 2/2

L 13321-66 EWT(1)/EEC(k)-2/T/EWA(h) IJP(c)

ACC NR: AT6003782 SOURCE CODE: UR/2657/65/000/014/0003/0019

AUTHOR: Nikolayevskiy, I. F., Perel'man, B. L., Skorik, K. I., Zotova, L. G.

CRG: none

TITLE: Low-temperature parameters of transistors

SOURCE: Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, no. 14, 1965, 3-19

TOPIC TAGS: germanium, transistor, parameter

ABSTRACT: Theoretical and experimental data regarding current amplification and input and output impedance of various types of the transistors in the low-temperature ranges are considered. An experimental liquid nitrogen refrigeration chamber is described; this chamber keeps the temperature of the medium within the low temperature range, down to -160C, with deviations not exceeding ± 2C. The aim of the study was to fill the existing gap in the theoretical and experimental data on the low-frequency operation of germanium transistors in the low-temperature range down to -140C. Graphs and data presented in the original article on temperature dependences of transistor electric parameters are based on measurement results from 10--40 transistors of each type tested. Orig. art. has: 14 figures, 1 table, and 23 formulas. [KP]

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 002/

Card 1/1

UDC: 621.382.342.029.45

PEREL'MAN, B.; YATSKEVICH, N.; STREKALOVSKIY, Ye.

Semiautomatic deposition of bronze on a steel base. Mor.flot 25 no.1:32 Ja '65. (MIRA 18:2)

1. Starshiy tekhnolog tekhnicheskogo otdela sudoremontnogo zavoda v Sovetskoy gavani (for Perel'man). 2. Nachal'nik laboratorii sudoremontnogo zavoda v Sovetskoy gavani (for Yatskevich). 3. Nachal'nik tekhnologo-kal'kulyatsionnogo byuro sudoremontnogo zavoda v Sovetskoy gavani (for Strekalovskiy).